Navy Advancement Center

Web site: http://www.advancement.cnet.navy.mil

Advancement Handbook for Aviation Warfare Systems Operator (Acoustic)

PREFACE

The purpose of the Advancement Handbook is to help you focus your preparation for Navy-wide advancement-in-rating examinations. The bibliographies (BIBs) together with this handbook form a comprehensive examination study package. Since this handbook provides skill and knowledge components for each paygrade of the Aviation Systems Operator (Acoustic) rating, it helps you concentrate your study on those areas that may be tested. This feature will help you get the most out of your study time.

Each page in Parts 1 through 4 of this Advancement Handbook presents general skill areas, specific skill areas, the knowledge factors associated with each skill area, the pertinent references required to perform each skill, and the types of subject areas that may be covered on the examination. The skill statements are cumulative; that is, you are responsible for the skills for the paygrade you are competing for, your present paygrade, and all paygrades below.

Although this handbook is very comprehensive, it cannot cover all the tasks performed in the rating. As a result, the advancement examinations may contain questions more detailed than described in the "Exam Expectations" section of the skill areas.

Remember that advancement competition is keen, so your keys to advancement include not only comprehensive advancement examination study but also sustained superior performance.

Prepared by

Navy Advancement Center Department Naval Education and Training Professional Development and Technology Center

CONTENTS

PARTS	PAGE
1	Advancement Handbook for Aviation Warfare Systems Operator (Acoustic) Third Class
2	Advancement Handbook for Aviation Warfare Systems Operator (Acoustic) Second Class
3	Advancement Handbook for Aviation Warfare Systems Operator (Acoustic) First Class
4	Advancement Handbook for Aviation Warfare Systems Operator Chief
Appendix 1	References Used in This Advancement Handbook

Part 1

General AWA Skill Area	General Aircrew Duties
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform aircraft preflight/in-flight/post- flight duties
Knowledge you should have to perform this skill:	 Perform aircraft preflight inspections Conduct hot seat transfer briefs Service aircraft Perform equipment preflight inspections Perform passenger briefs Perform personal survival equipment preflight inspections Perform emergency drills Perform preflight, in-flight, and post – flight operational tests Perform aircraft post-flight inspections Secure aircraft equipment Secure aircraft Perform on-station mission turnovers Fuel aircraft Perform foreign object damage (FOD) walkdowns
References you should study to gain the knowledge you need to perform this skill:	 NAVAIR 01-75PAC-1.1 NAVAIR 01-75PAC-1/1.1 SUPP NAVAIR 01-75PAC-11-6-26 NAVAIR 13-1-6 SERIES NFO/AC NFM 01-75PAC-1.1 OPNAVINST 3710.7 (Series)
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about the individual elements of aircraft preflight, such as FOD walk-down, aircraft servicing, survival gear checks and aircraft equipment preflight checks; in-flight equipment checks, emergency drills and aircraft post-flight checks

General AWA Skill Area	Aircrew Training
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform aircrew NATOPS, survival, Search and Rescue (SAR), CSAR, Tactical, Weapons and Sensor training
Knowledge you should have to perform this skill:	 Conduct NATOPS training exercises Conduct water survival exercises Conduct land survival exercises Conduct survival first aid exercises Conduct warfare training exercises Conduct airborne training exercises Conduct aircraft, ship and submarine recognition exercises Conduct search stores training exercises Draw electronic system block diagrams (acoustic)
References you should study to gain the knowledge you need to perform this skill:	 AFTTP 3-1, Vol 1 ATP-1 AXP-1 Combat Visual Identification Series (CVIS) FXP-1 Jane's All the World's Aircraft Jane's Fighting Ships NAVAIR 00-80T-101 NAVAIR 00-80T-113 NAVAIR 01-75PAC-1.1 NAVAIR 28-SSQ-500-1 NWP 3-50.1 NWP 3-50.3 OPNAVINST 3710.7 (Series) The Naval Institute Guide to Combat Fleets of the World

Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:

You can expect questions concerning NATOPS training; water and land survival procedures, aeromedical qualifications, general first aid procedures; aircraft, ship and submarine recognition; and Allied/Fleet training exercises

General AWA Skill Area	Aircrew Administration
A <i>skill</i> you are expected to perform from the General Skill Area above:	Maintain Enlisted Flight Time Records Research and Maintain Tactical Publications
Knowledge you should have to perform this skill:	 Conduct monthly flight hour audits Prepare monthly flight hour summaries Update flight time log books Prepare and update enlisted personnel flight time summaries Research tactical publications Prepare daily flight schedules Prepare aircraft passenger manifests
References you should study to gain the knowledge you need to perform this skill:	 BUPERSINST 1326.4 (Series) NAVAIR 01-75PAC-1.1 NAVPERS 15560 NAVPERS 15909F NWP 1-01 OPNAVINST 3710.7 (Series)
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	You can expect questions concerning the drafting and filing of daily flight schedules; requirements and procedures for auditing and tracking enlisted flight records; as well as research and maintenance of tactical publications, and maintenance of acoustic libraries

General AWA Skill Area	Environmentals
A <i>skill</i> you are expected to perform from the General Skill Area above:	Determine sound characteristics Interpret environmental data and contour charts Solve ASW equations
Knowledge you should have to perform this skill:	 Update ocean temperature data bases Evaluate environmental data Calculate predicted transmission path ranges Evaluate ocean bottom topography Draw and label sound velocity profiles Calculate Figure of Merit (FOM) Conduct bathythermograph (BT) readings Analyze sea surface temperature data Compute sound pressure levels (SPLs) Calculate convergence zone locations, sizes, and depths Calculate direct target intercept paths Classify sound transmission paths
References you should study to gain the knowledge you need to perform this skill:	 ATP-28 NAVAIR 28-SSQ-500-4 NAVMETOCCOMINST C3140.1 (Series) NWP 3-22.5-P3-TACMAN RP-33
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	You can expect questions concerning the effects of environmental changes on acoustic and non-acoustic transmission paths

General AWA Skill Area	Tactical/Mission Support
A <i>skill</i> you are expected to perform from the General Skill Area above:	Store and maintain aircraft recording media Maintain logs, charts, and publications Evaluate publications and messages
Knowledge you should have to perform this skill:	 Enter real-time and post-flight tactical data Conduct data transfers (tactical, nontactical, etc.) Duplicate recording media Prepare and update mission brief books Prepare and update mission summary logs Conduct flight crew briefs and debriefs Conduct post-flight analysis (PFA) Annotate acoustic data Transmit data link passive acoustic sonobuoy contacts Analyze post-flight acoustic data Perform battle damage assessments (BDA) Upload and download mission tape recorders
References you should study to gain the knowledge you need to perform this skill:	 ATP-28 NWP 1-01 NWP 1-10.1 NWP 1-10.22, Vols I and II NWP 1-10.26 NWP1-10-27 NWP 3-22.5-ASW SUPP NWP 3-22.5-P3-TACMAN ONI-1259-001-00 SECNAVINST 5510.30A SECNAVINST 5510.36

Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:

You can expect questions concerning equipment utilized to provide mission support, subject matter of specific tactical publications, maintenance of tactical publication libraries and updating/maintaining contact logs. Also, questions concerning handling of tactical data may be asked

General AWA Skill Area	Communications
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform tactical communications
Knowledge you should have to perform this skill:	 Perform subsurface communications Perform brevity codes communication Perform radio circuit communications Perform intercommunications systems (ICS) communications Test communication systems Initiate secure communications Encode tactical messages Decode tactical messages Perform nonsecure communications
References you should study to gain the knowledge you need to perform this skill:	 ACP-165 FXP-1 NAVAIR 00-80T-113 NAVAIR 01-75PAC-1.1 NWP 1-01 NWP 1-03.1 NWP 3-21.42 NWP 3-22.5-ASW SUPP NWP 3-22.5-P3-TACMAN
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	You can expect questions concerning all aspects of radio communications, visual communications, and the use of various signaling devices

General AWA Skill Area	Passive Sonobuoy Operations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Carry out passive sonobuoy handling operations Conduct passive sonobuoy searches and localize passive sonobuoy contacts Monitor and assess weapons deployment using passive sensors

Knowledge you should have to perform this skill:

- Calculate closest point of approach (CPA)
- Record surface and subsurface contact acoustic signatures
- Classify radio frequency (RF) interference
- Classify multi-target contacts
- Perform ambient noise level measurements
- Determine target or non-target artifacts
- Tune passive sonobuoys
- Hook passive bearing frequencies of interest
- Identify passive contacts
- Record passive acoustic data
- Conduct passive tracking with passive tracking algorithms
- Program passive sonobuoy auto alert parameters
- Hook passive acoustic sonobuoy contacts
- Calculate passive acoustic detection ranges
- Calculate passive acoustic sonobuoy contact course, speed, and depth
- Identify passive acoustic sonobuoy contacts CPA
- Conduct passive acoustic sonobuoy searches
- Track passive acoustic sonobuoy contacts
- Analyze and classify passive acoustic sonobuov contacts
- Fix passive acoustic sonobuoy contacts
- Transmit passive acoustic sonobuoy contact data
- Employ passive sonobuoy tactics

References you should study to gain the knowledge you need to perform this skill:	 DST 1220S-465-92 DST 1220S-646-93 NAVAIR 01-75PAC-1.1 NAVAIR 28-SSQ-500-1 NAVAIR 28-SSQ-500-4 NWP 1-10.2, Vol I NWP 1-10.21 NWP 1-10.26 NWP 1-10.27 NWP 3-21.42 NWP 3-22.5-ASW SUPP NWP 3-22.5-P3-TACMAN
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	You can expect questions concerning virtually all aspects of passive operations, including search, localization, tracking, analysis and associated tactics

General AWA Skill Area	Active Sonobuoy Operations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Conduct active sonobuoy searches Localize active sonobuoy contacts
Knowledge you should have to perform this skill:	 Determine optimum active sonobuoy effectiveness Identify active sonobuoy contacts Record active acoustic data Calculate active sonobuoy ranges Determine active sonobuoy search depths Track active sonobuoy contacts Analyze active sonobuoy contacts Classify active sonobuoy contacts Classify active sonobuoy aural cues Calculate active sonobuoy target course and speed Classify active sonobuoy non-target contacts Tune active sonobuoy Display active sonobuoy data Hook active contact bearings and ranges
References you should study to gain the knowledge you need to perform this skill:	 NAVAIR 01-75PAC-1.1 NAVAIR 28-SSQ-500-1 NWP 3-22.5-ASW TAC NWP 3-22.5-P3-TACMAN
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly.	You can expect questions concerning virtually all aspects of active operations, including search, localization, analysis, and associated tactics

General AWA Skill Area	Visual/Photographic Operations Infrared (IR)/Electro-Optical (EO) Operations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Identify, evaluate, and report visual contacts Conduct visual searches Conduct photographic operations
Knowledge you should have to perform this skill:	 Load intelligence gathering cameras Perform visual searches Classify visual contacts Estimate sea states Perform photographic riggings Perform visual hazardous terrain avoidance Conduct drug interdiction searches
References you should study to gain the knowledge you need to perform this skill:	 Combat Visual Identification System (CVIS) Jane's All the World's Aircraft Jane's Fighting Ships NWP 3-22.5-P3 The Naval Institute Guide to Combat Fleets of the World
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	You can expect questions concerning visual search procedures, including crew coordination, equipment utilization, and basic appearance groups

General AWA Skill Area	Search/Kill Stores Operations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform search/kill stores handling and loading
Knowledge you should have to perform this skill:	 Monitor weapons deployment Classify active emissions Set search stores (life, depths and channels) Load search stores Unload search stores Arm search stores De-arm search stores Launch search stores Set kill stores Load kill stores Unload kill stores Arm kill stores De-arm kill stores Track ordnance expenditures Program weapon station stores (torpedoes) Conduct ASW search stores Install sonobuoy cartridge actuated Devices (CADs) Remove sonobuoy CADs
References you should study to gain the knowledge you need to perform this skill:	 NAVAIR 28-SSQ-500-1 NAVAIR 28-SSQ-500-4 NWP 3-22.5-ASW SUPP NWP 3-22.5-P3-TACMAN

Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:

You can expect questions concerning individual specifications of search/kill stores and search/kill stores handling, loading, and unloading

Part 2

General AWA Skill Area	Aircrew Administration	
A <i>skill</i> you are expected to perform from the General Skill Area above:	Administer NATOPS Programs Maintain Databases	
Knowledge you should have to perform this skill:	 Update NATOPS training jackets Update acoustic signature databases Update aviation warfare (AW) intelligence databases Update environmental databases Analyze water mass data 	
References you should study to gain the knowledge you need to perform this skill:	 ATP-28 DST 1220S-465-92 DST 1220S-646-93 NAVAIR 01-75PAC-1.1 NWP 1-10.1 NWP 1-10.21 NWP 1-10.22, Vols I and II NWP 1-10.26 NWP 1-10.27 OPNAVINST 3710.7 (Series) RP-33 	
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	You can expect questions concerning the maintenance and verification of NATOPS training jackets; as well as research, maintenance and verification of operational databases	

General AWA Skill Area	Tactical/Mission Support	
A skill you are expected to perform from the General Skill Area above:	Maintain tactical publications library Enter flight data into tactical databases	
Knowledge you should have to perform this skill:	 Update acoustic contact history records Prepare post operations mission wrap-ups Perform tactical mission reconstruction 	
References you should study to gain the knowledge you need to perform this skill:	 NWP 1-01 NWP 3-21.42 NWP 3-22.5-ASW SUPP NWP 3-22.5-P3 	
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	You can expect questions concerning maintenance of tactical publications libraries and mission support, including mission wrap- ups and reconstruction	

General AWA Skill Area	Passive Sonobuoy Operations	
A <i>skill</i> you are expected to perform from the General Skill Area above:	Recommend passive sonobuoy tactics	
Knowledge you should have to perform this skill:	Determine optimum sensor effectiveness	
References you should study to gain the knowledge you need to perform this skill:	NWP 3-22.5-P3NWP 3-21.42	
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	You can expect questions concerning virtually all aspects of passive operations, including search, localization, tracking, analysis and associated tactics	

General AWA Skill Area	Active Sonobuoy Operations	
A <i>skill</i> you are expected to perform from the General Skill Area above:	Recommend active sonobuoy tactics Manage active sonobuoy monitor cycle	
Knowledge you should have to perform this skill:	Determine optimum sensor effectiveness	
References you should study to gain the knowledge you need to perform this skill:	 NAVAIR 01-75PAC-1.1 NAVAIR 28-SSQ-500-1 NWP 3-21-42 NWP 3-22.5-P3 	
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	You can expect questions concerning virtually all aspects of active operations, including search, localization, analysis, and associated tactics	

General AWA Skill Area	Nonacoustic Operations	
A skill you are expected to perform from the General Skill Area above:	Conduct Inverse Synthetic Aperture Radar (ISAR) pre-flights Convert between true, relative, and magnetic bearing Perform weather avoidance radar Navigation Perform Identification Friend or Foe (IFF) interrogations Conduct radar searches	
Knowledge you should have to perform this skill:	 Calculate radar formulas Convert true bearings Convert relative bearings Convert magnetic bearings Calculate radar ranges Analyze radar contacts Classify radar contacts Fix radar contacts Track sea radar contacts Calculate radar contact courses Calculate radar contact speeds Vector aircraft Identify radar contact maneuvers Establish radar stand-off distances Calculate radar operation optimum altitudes Calculate IR formulas Calculate MAD formulas 	
References you should study to gain the knowledge you need to perform this skill:	 NAVAIR 01-75PAC-1.1 NWP 3-21.42 NWP 3-22.5-P3 	

Exam Expectations. These		
are subject areas you		
should know to help you		
answer exam questions		
correctly:		

You can expect questions concerning basic nonacoustic operations, including optimum equipment effectiveness and tactics

Part 3

General AWA Skill Area	Training Management	
A <i>skill</i> you are expected to perform from the General Skill Area above:	Establish and maintain aircrew training programs Conduct training Evaluate effectiveness of training Coordinate aircraft safety and inspection programs	
Knowledge you should have to perform this skill:	 Update aircrew training programs Coordinate aircrew qualification and readiness programs Update aircrew qualification and readiness programs Evaluate aircrew qualification and Readiness programs Evaluate sensor operator proficiencies Maintain acoustic and nonacoustic signature libraries Administer NATOPS testing Coordinate NATOPS check rides 	
References you should study to gain the knowledge you need to perform this skill:	 NAVAIR 01-75PAC-1.1 OPNAVINST 3710.7 (Series) 	
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	You can expect questions concerning all aspects of aircrew training, including NATOPS program coordination, sensor operator proficiency, and aircrew qualifications and proficiency	

General AWA Skill Area	Tactical Mission Support	
A skill you are expected to perform from the General Skill Area above:	Carry out mission pre-flight support duties Carry out mission in-flight support duties Carry out mission post-flight support duties	
Knowledge you should have to perform this skill:	 Plan tactical missions Establish AW tape management program 	
References you should study to gain the knowledge you need to perform this skill:	 AXP-1 FXP-1 NWP 3-21.42 NWP 3-22.5-ASW SUPP NWP 3-22.5-P3 	
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	You can expect questions concerning mission support duties, including tactical mission planning	

Part 4

Advancement Handbook for AWC

Candidates for advancement to AWC are responsible for all skills and knowledges for the AWA, AWH, and AWN ratings at the E-4, E-5, and E-6 paygrade levels. Refer to the Advancement Handbook for each rating for this information and for exam references.

Appendix 1

References Used in This Advancement Handbook

Short Title	Long Title	Stocking Point
ACP-165	Operational Brevity Codes	Note 1
AFTTP-3-1, Vol 1	Threat Reference Guide and Counter Tactics	Note 10
ATP-28	Allied Submarine Warfare Manual	Note 1
AXP-1	Allied Submarine and Antisubmarine Exercise Manual	Note 1
BUPERSINST 1326.4	Administration of Enlisted Flight Orders	Note 1
CVIS	Combat Visual Identification System (CVIS)	Note 8
DST 1220S-465-92	Acoustic Characteristics of CIS Submarines, Type 6 and Type 7 Nuclear	Note 7
DST 1220S-646-93	Acoustic Characteristics of CIS Submarines, Type 1 through 4 Diesel	Note 7
FXP-1	Antisubmarine Warfare (ASW) Exercises	Note 1
Jane's	Jane's All the World's Aircraft	Note 9
Jane's	Jane's Fighting Ships	Note 9
NAVAIR 00-80T-101	NATOPS Survival Manual	Note 1
NAVAIR 00-80T-113	Aircraft Signals NATOPS Manual	Note 1
NAVAIR 01-75 PAC- 1/1.1 SUPP	P-3C A/B/C Pilot/NFO/Aircrew AIP NFM Supplement	Note 2
NAVAIR 01-75 PAC-	Inflight Handbook	Note 2

11-6-26	Sensor Station 3 A 4.7 ES	
NAVAIR 13-1-6 Series	Aviation Life Support Systems Technical Manuals	Note 2
NAVAIR 28-SSQ-500-1	Sonobuoys	Note 1
NAVAIR 28-SSQ-500-4	Technical Manual for	Note 1
	Sonobuoys	
NAVMETOCCOMINST	United States Navy	Note 3
3140.1	Meteorological &	
	Oceanographic	
	Support System	
	Manual	
NAVPERS 15560	Naval Military	Note 7
	Personnel Manual	
	(Articles 1050305,	
	1410240, 2620150,	
	2620300, 6610140, and	
	6610160)	
NAVPERS 15909F	Enlisted Transfer	Note 7
	Manual (Article 9.1n)	
NFO/AC NFM 01-	NFO/Aircrew	Note 1
75PAC-1.1	NATOPS Flight	
	Manual P-3A/B/C	
NWP 1-01	Naval Warfare	Note 4
	Publication System	
NWP 1-03.1	Operational Reports	Note 4
NWP 1-10.1	Tactical Action Officer	Note 4
	Handbook	
NWP 1-10.2, Vol I	Principles of	Note 4
	Lofargram Analysis	
NWP 1-10.21	Foreign Submarine	Note 4
	Data Handbook	
NWP 1-10.22, Vol I	Passive Acoustic	Note 4
	Classification	
NUMBER OF STREET	Reference Manual	
NWP 1-10.22, Vol II	Passive Acoustic	Note 4
	Classification	
	Reference Manual-	
NWWD 1 10 02	Pocket Guide	NT / A
NWP 1-10.26	Signature Catalog:	Note 4
	CIS Diesel and	
	Nuclear Submarines	

NWP 1-10.27	U.S. Nuclear Submarine Data	Note 4
	Handbook	
NWP 3-21.42	Air Antisubmarine	Note 4
	Warfare Tactical	
	Airborne Information	
	Document (Air ASW TACAID)	
NWP 3-22.5-ASW SUPP	Air ASW Supplement	Note 4
NWP 3-22.5-P3	P-3 Tactical Manual	Note 4
NWP 3-50.1	Navy Search and	Note 4
	Rescue (SAR) Manual	
NWP 3-50.3	Multiservice	Note 4
	Procedures for	
	Survival, Evasion, and	
O.W. 1070 001 00	Recovery	77
ONI-1259-001-00	Acoustic Intelligence	Note 6
	(ACINT) Collection	
OPNAVINST 3710.7	Guide (ASW Aircraft) NATOPS General	Note 2
OFNAVINSI 3710.7	Flight and Operating	Note 2
	Instructions	
RP-33	Fleet Oceanographic	Note 5
101 00	and Acoustic Reference	11016 8
	Manual	
SECNAVINST	Department of the	Note 2
5510.30A	Navy Personnel	
	Security Program	
	Regulation	
SECNAVINST 5510.36	Department of the	Note 2
	Navy Information	
	Security Program	
	Regulation	

LEGEND:

- Note 1 To order, MILSTRIP to NAVICP PHILA or via INTERNET http://www.nll.navsup.navy.mil, use most current edition, consult NAVEDTRA 12061 Catalog of nonresident training courses for stock numbers.
- Note 2 Available via INTERNET http://www.nll.navsup.navy.mil or http://www.nll.navsup.navy.mil or http://www.nll.navsup.navy.mil or http://www.nll.navsup.navy.mil or
- Note 3 Letter request to Commander, Navy Meteorology and Oceanography Command, 1020 Balch Boulevard, Stennis Space Center, MS 39529-5005
- Note 4 NTIC Series B1 CD-ROM's (See your command NWP Custodian) or MILSTRIP to NAVICP PHILA
- Note 5 National Imagery & Mapping Agency (NIMA), CATP2V01U
- Note 6 Requests should be made via validating type commander and directed to Commander, Naval Intelligence Command (Attn: NIC-522), 4600 Suitland Road, Washington, D.C. 20389-5000.
- Note 7 To order send command letter to: Director, Office of Naval Intelligence, 4301 Suitland Road, Washington D.C. 20395-5000
- Note 8 —NAWC Code 34201E Point Mugu, CA 92042-5001 DSN 351-7918
- Note 9 —See command Intelligence Officer
- Note 10 —See command custodian or make request to:

57 Wing Weapons and Tactics

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